

Service Manual

Radio

FM-MW-SW1~4
6-Band Portable Radio

RF-B300/©



■ SPECIFICATIONS

SW

Frequency Range: SW1 1.6~4MHz
SW2 4~10MHz
SW3 10~20MHz
SW4 20~30MHz

Type: Double superheterodyne SW2~4
IF: 1st IF; 2MHz
2nd IF; 455kHz

Sensitivity: MAX S/N 20dB
400Hz, 30% Modulation 50mW
SW1 35 μ V/m 125 μ V/m
SW2 1.8 μ V 9 μ V
SW3 1.0 μ V 6 μ V
SW4 4 μ V 10 μ V

Selectivity: SW2~4;
WIDE \pm 3.5kHz (-6dB)
 \pm 7.0kHz (-50dB)
NARROW \pm 1.5kHz (-6dB)
 \pm 4.0kHz (-50dB)

Image Interference Ratio: SW1 25dB at 4MHz
SW2 30dB at 10MHz
SW3 20dB at 20MHz

Antenna: Whip, EXT. Antenna (High Impedance) Ferrite core (SW1)

MW

Frequency Range: MW 525~1610kHz
Type: Single superheterodyne
IF: 455kHz
Sensitivity: MAX S/N 20dB
400Hz, 30% Modulation 50mW
40 μ V/m 180 μ V/m

Image Interference Ratio: 35dB at 1000kHz
Antenna: Ferrite core
Whip, EXT. Antenna (High Impedance)

FM

Frequency Range: FM 88~108MHz
Type: Single superheterodyne
IF: 10.7MHz
Sensitivity: 2.5 μ V/75 Ω (-3dB, Limit Sens)
2.5 μ V/75 Ω (S/N 26dB)

Image Interference Ratio: 30dB at 98MHz
Antenna: Whip, EXT. Antenna (75 Ω)

General
Speaker: 10cm (4") PM Dynamic speaker (4 Ω)
Power Source: AC 110~127/220~240V, 50/60Hz
DC 9V (six "C" size Flashlight Batteries)
(Panasonic UM-2 or equivalent)
6W

Power Consumption: 6W
Jacks: Earphone/EXT. Speaker (4~8 Ω) ϕ 3.5
REC OUT (10k Ω) ϕ 3.5
AC IN
EXT. Antenna: FM 75 Ω
AM High Impedance

Dimensions (W×H×D): 348×215×108mm
(13 $\frac{11}{16}$ ×8 $\frac{1}{2}$ ×4 $\frac{1}{4}$)"

Weight: 2.18kg (4 lb 12.8 oz) without batteries

Weights and dimensions shown are approximate.
(Les poids et dimensions mentionnes sont approximatifs.)
Specifications are subject to change without notice.

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DISASSEMBLY INSTRUCTIONS

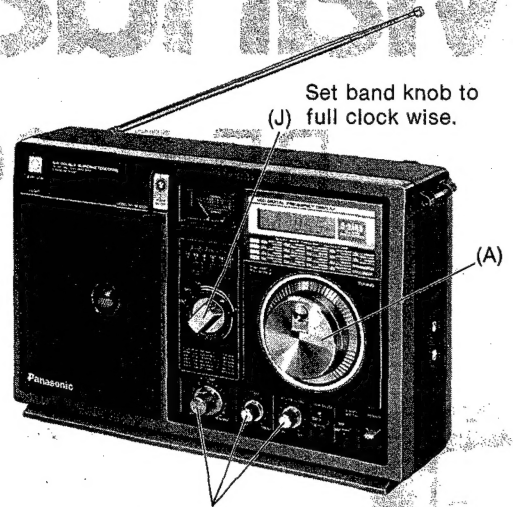


Fig. 6

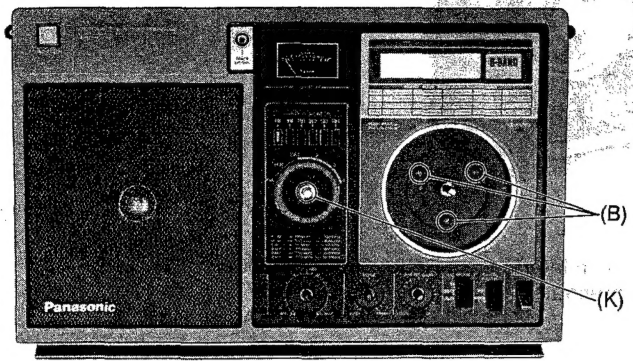


Fig. 7

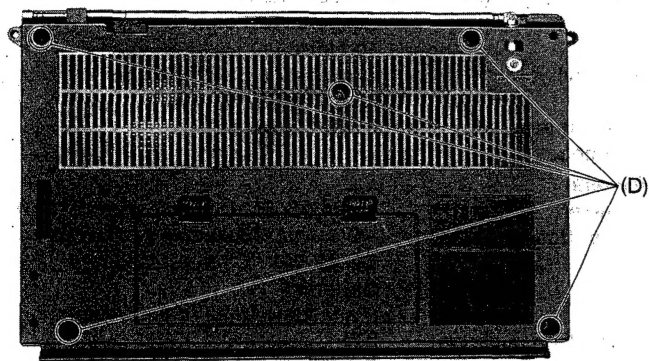


Fig. 8

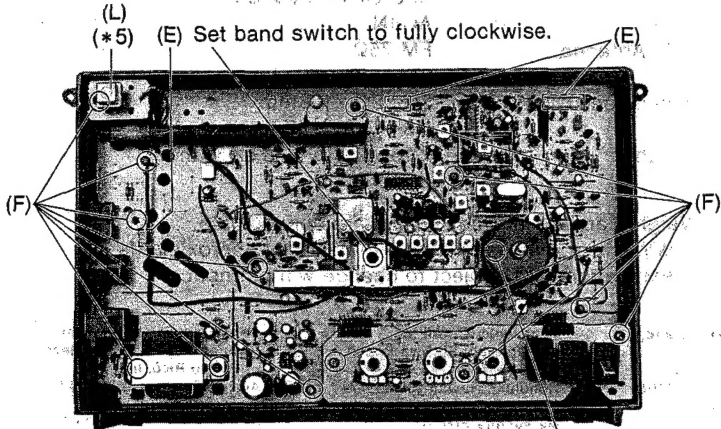


Fig. 9

Setting rib (*3)

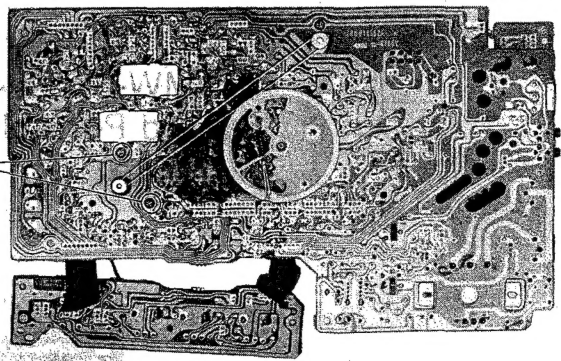


Fig. 10

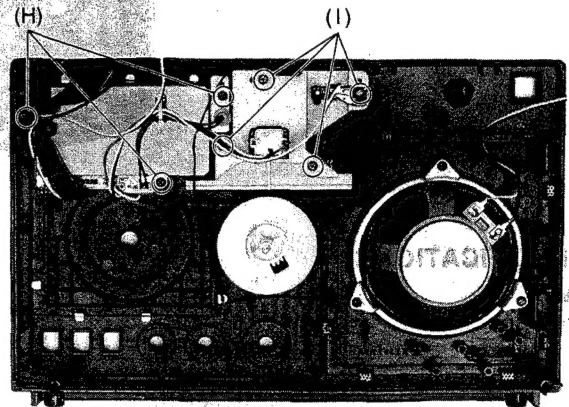


Fig. 11

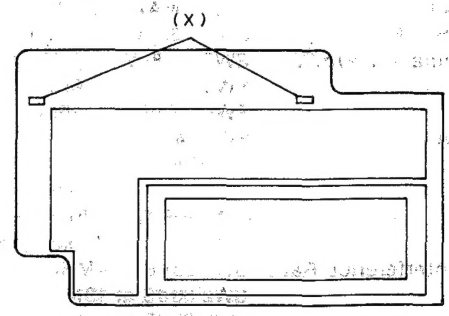


Fig. 12

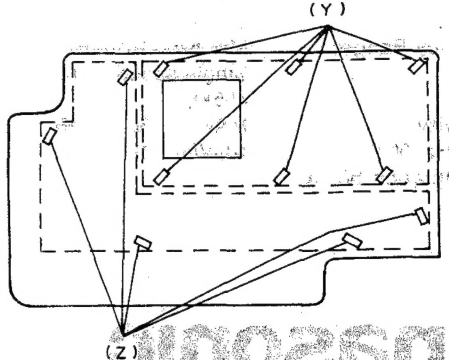


Fig. 13

SAFETY PRECAUTIONS (For U.S.A.)

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

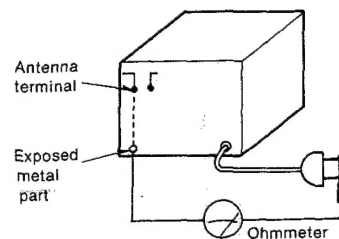


Fig. 1

Resistance = 3 MΩ—5.2 MΩ

INSULATION RESISTANCE TEST (For U.S.A.)

1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads, antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between 3 MΩ and 5.2 MΩ to all exposed parts* (Fig. 1) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. 2)
 *Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.
4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

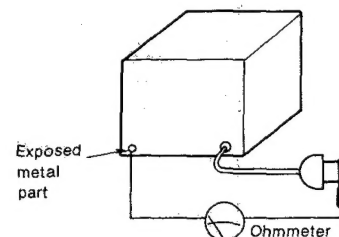


Fig. 2

Resistance = Approx ∞

LOCATION OF CONTROLS AND COMPONENTS

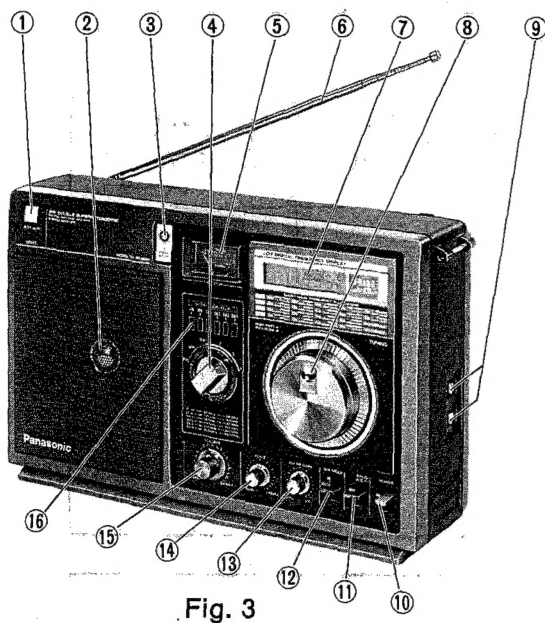


Fig. 3

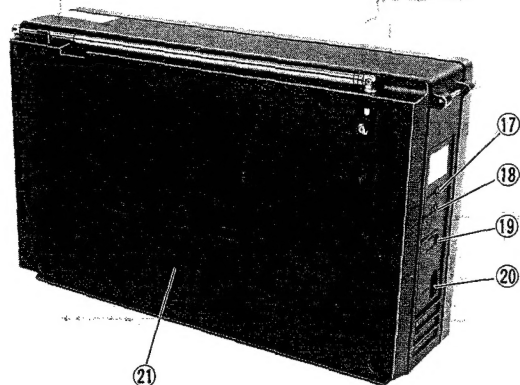


Fig. 4

- ① Light Switch (ON, OFF)
- ② Speaker 10cm (4") 4Ω
- ③ Power, Battery Indicator
- ④ Band Switch (FM, MW, SW1, SW2, SW3, SW4)
- ⑤ Tuning, Signal Meter
- ⑥ Telescopic Antenna
- ⑦ Frequency Display
- ⑧ Tuning Control (Pull...Slow, Push...Fast)
- ⑨ External Antenna/Earth Terminal (FM 75Ω, AM High IMP.)
- ⑩ Power Switch (ON, OFF)
- ⑪ Band Width Switch (WIDE, NARROW)
- ⑫ AM Mode Switch (AM, USB/CW, LSB/CW)
- ⑬ AM RF Gain Control
- ⑭ Tone Control
- ⑮ Volume Control
- ⑯ Band Switch Indicator
- ⑰ Recording Output Jack (10kΩ) ϕ3.5
- ⑱ Earphone/External Speaker Jack (4~8Ω) ϕ3.5
- ⑲ AC Voltage Selector
- ⑳ AC Socket
- ㉑ Battery Compartment

BLOCK DIAGRAM

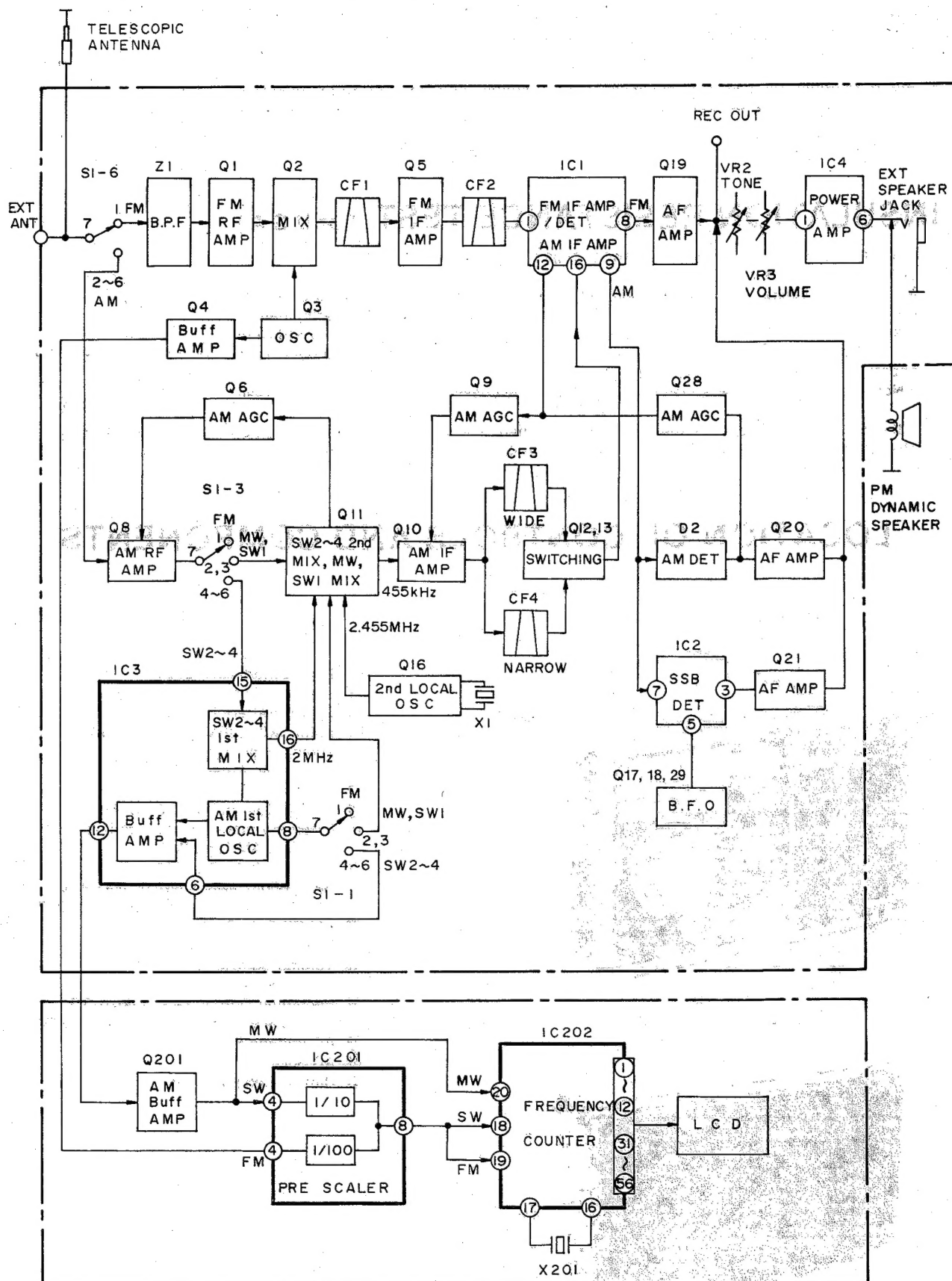


Fig. 5

HOW TO REASSEMBLE THE LCD BLOCK

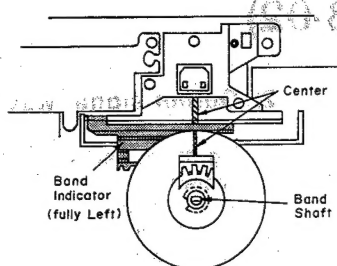


Fig. 14

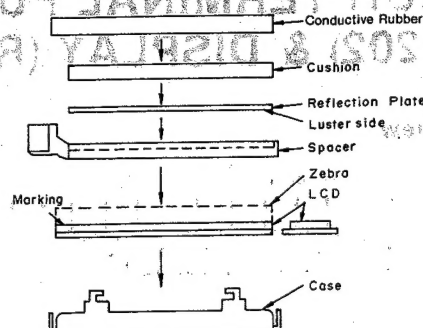


Fig. 15

Ref. No.	Procedure	Shown in Fig. —	To remove —	Remove —
1	1~5	6	Front Cabinet *1, 2	Tuning Knob(A)×1
2		7		Screw (3×12)(B)×3
3		6		Control Knob.....(C)×3
4		8		Screw (3×40)(D)×5
5		9		Socket(E)×3
6	1~6	9	Circuit Board	Screw (3×12)(F)×13
7	1~7	10	Tuning Shaft Ass'y *3	Screw (3×12)(G)×2
8	1~5, 8	11	LCD Block	Screw (3×10)(H)×3
9	1~5, 9	11	Meter	Screw (3×12)(I)×4
10	1~5, 10, 11	6	Band Shaft *4	Band Knob.....(J)×1
11		7		Circlip (φ4)(K)×1
12	1~5, 12	9	Light Button *5	Button(L)×1
13	1~5, 8, 13	12	LCD Bracket	Unsolder(X)×2
14	1~5, 8, 13, 14	13	LCD Case	Unsolder(Y)×6
15	1~5, 8, 13~15	13	LCD Shield Cover	Unsolder(Z)×5

- *1. To reassemble the front cabinet, set AM mode switch to USB/CW, band width switch to WIDE and Power switch to ON position.
- *2. To reassemble the front cabinet, set band knob and band switch to full clockwise.
- *3. To reassemble the tuning shaft ass'y, set the rib as shown in fig. 9.
- *4. To reassemble the band shaft, set band switch indicator to full left and band shaft to center as shown in fig. 14.
- *5. To remove the light button, set light switch to OFF position.

DIAL THREADING

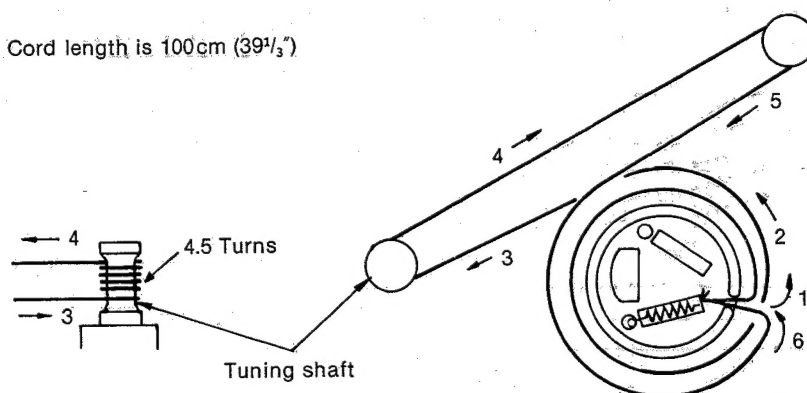
Cord length is 100cm (39 $\frac{1}{3}$ ")

Fig. 16

EACH TERMINAL FUNCTION OF RVIMSM5527GS (IC202) & DISPLAY (RADLCD453-02)

1) Terminal view

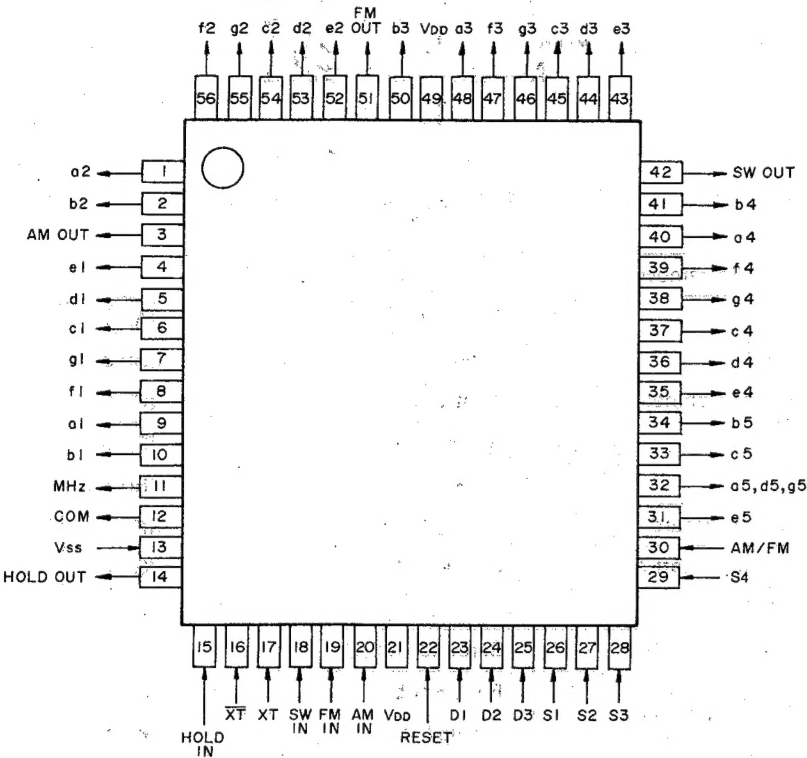


Fig. 17

2) Output signal waveforms for LCD

Fig. 18 indicates the timing chart of LCD operation.

No.	Phase of segment signal vs. common signal	Segments of LCD
1	Oposite	ON
2	Same	OFF

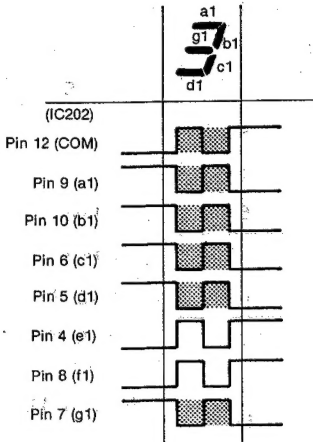


Fig. 18

3) Block diagram

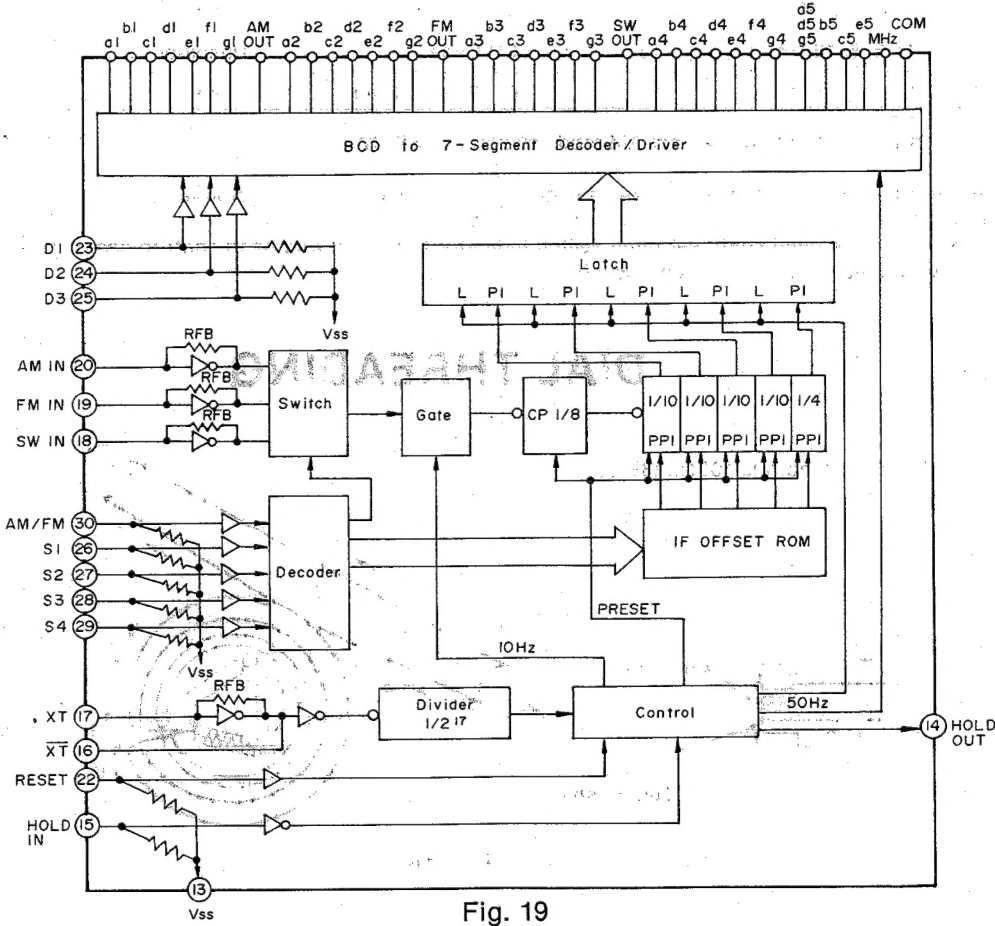
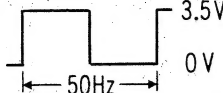
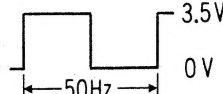
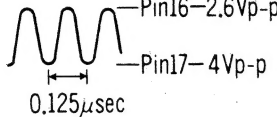

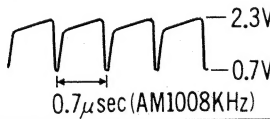
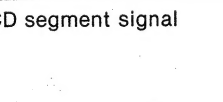


Fig. 19

4) Explanation of each terminal

Pin No.	Symbol	Terminal	Description																																			
1, 2	a2, b2		Output signals for digit 2 LCD segments.																																			
3	AM OUT		Output signal for "MW" and "kHz" LCD segment.																																			
4~10	a1~g1		Output signals for digit 1 LCD segments.																																			
11	MHz		Output signal for "MHz" LCD segment.																																			
12	COM	LCD common signal: 	Output signal for LCD COM segment.																																			
13	Vss	Ground	Ground terminal.																																			
16, 17	XT, XT	Crystal oscillator 	Terminals used for connecting a crystal oscillator. Connects a 6.5536MHz crystal oscillator.																																			
18, 19	SW IN, FM IN	SW and FM local OSC input 	The FM and SW2~4 local oscillation signal is inputted through the prescaler (FM 1/100, SW 1/10) to this terminal.																																			
20	AM IN	MW and SW1 local OSC input 	The MW and SW1 local oscillation signal is inputted directly from No. 12 pin of IC3 (AN7212) to this terminal.																																			
21, 49	VDD	POWER INPUT	Power source input.																																			
23~25	D1~D3	Display mode select input	<table border="1"><tr><td>D1</td><td>D2</td><td>D3</td><td>Digit</td></tr><tr><td>L</td><td>L</td><td>L</td><td>5</td></tr><tr><td>L</td><td>H</td><td>H</td><td>4</td></tr></table> Low...0V, Hi...3.5V	D1	D2	D3	Digit	L	L	L	5	L	H	H	4																							
D1	D2	D3	Digit																																			
L	L	L	5																																			
L	H	H	4																																			
26~30	S1~S4, AM/FM	IF off-set frequency select input	<table border="1"><tr><td>AM/FM</td><td>S1</td><td>S2</td><td>S3</td><td>S4</td><td>MODE</td><td>IF Off-Set Freq.</td></tr><tr><td>L</td><td>L</td><td>H</td><td>L</td><td>L</td><td>FM</td><td>-10.7MHz</td></tr><tr><td>H</td><td>L</td><td>L</td><td>L</td><td>L</td><td>MW</td><td>-455kHz</td></tr><tr><td>H</td><td>H</td><td>L</td><td>L</td><td>L</td><td>SW1</td><td>-455kHz</td></tr><tr><td>H</td><td>H</td><td>L</td><td>H</td><td>L</td><td>SW2~4</td><td>-2.0MHz</td></tr></table> Low...0V, Hi...3.5V	AM/FM	S1	S2	S3	S4	MODE	IF Off-Set Freq.	L	L	H	L	L	FM	-10.7MHz	H	L	L	L	L	MW	-455kHz	H	H	L	L	L	SW1	-455kHz	H	H	L	H	L	SW2~4	-2.0MHz
AM/FM	S1	S2	S3	S4	MODE	IF Off-Set Freq.																																
L	L	H	L	L	FM	-10.7MHz																																
H	L	L	L	L	MW	-455kHz																																
H	H	L	L	L	SW1	-455kHz																																
H	H	L	H	L	SW2~4	-2.0MHz																																
31~34	a5~e5, g5		Output signals for digit 5 LCD segments.																																			
35~41	a4~g4		Output signals for digit 4 LCD segments.																																			
42	SW OUT		Output signal for "SW" and "P4" segments of LCD.																																			
43~48, 50	a3~g3		Output signals for digit 3 LCD segments.																																			
51	FM OUT		Output signals for "FM" and "P3" segments of LCD.																																			
52~56	c2~g2		Output signals for digit 2 LCD segments.																																			

5) Displays internal wiring diagram

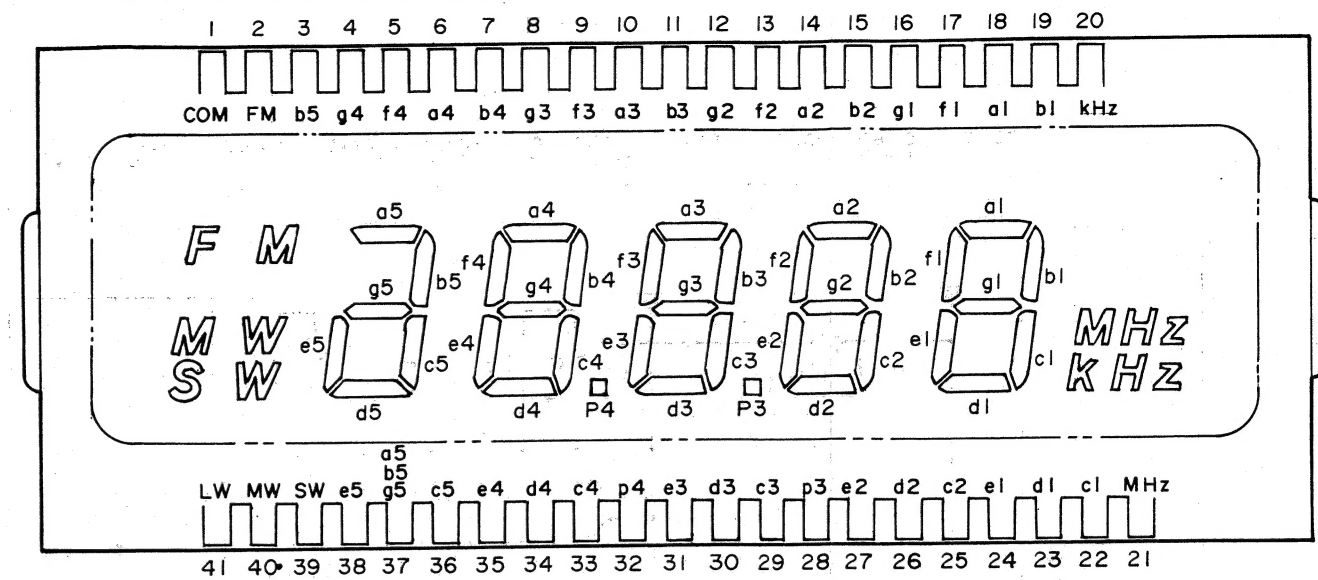


Fig. 20

MEASUREMENTS AND ADJUSTMENTS

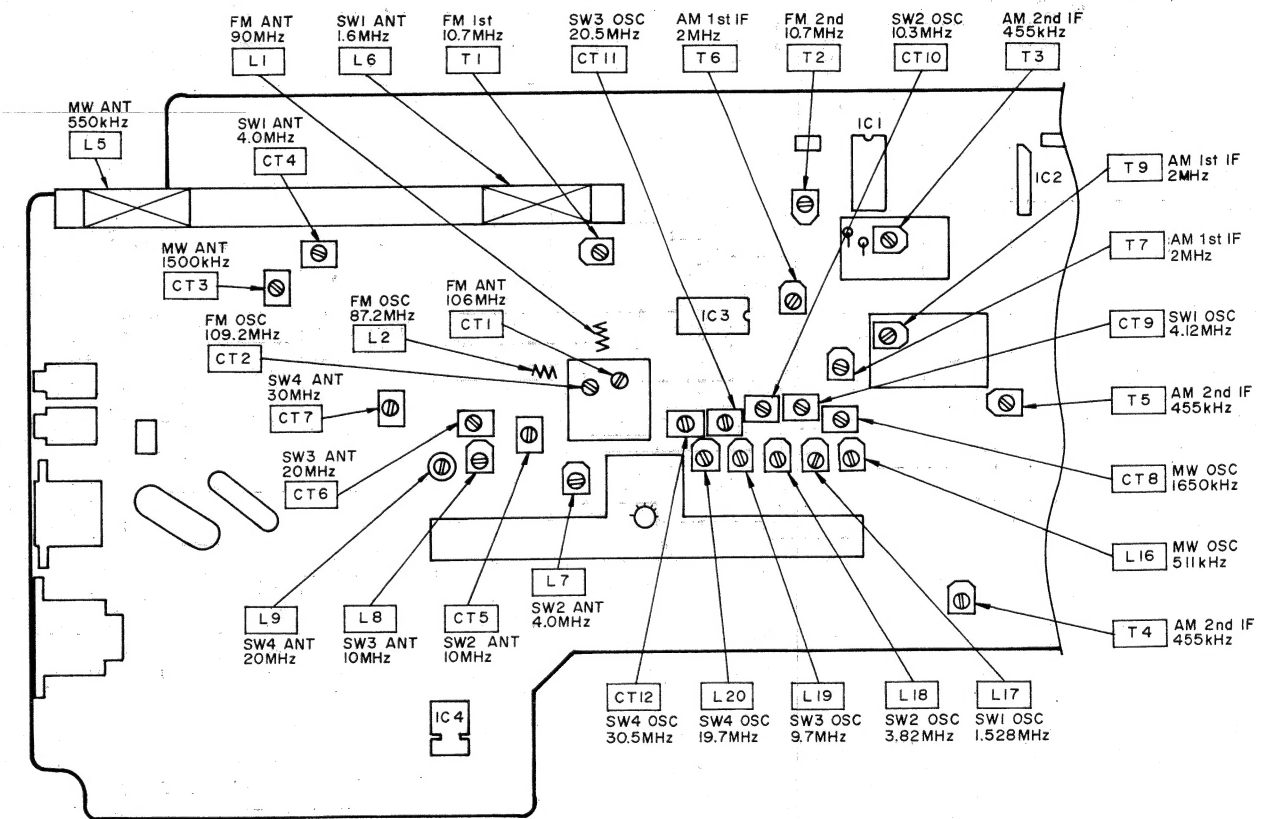


Fig. 21

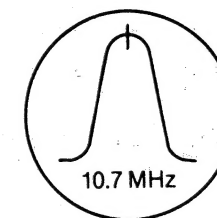


Fig. 22

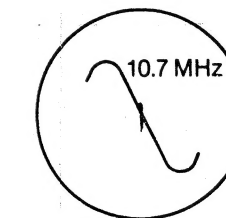


Fig. 23

■ ALIGNM

1. Set
2. Set
3. Set
4. Set
5. Set

■ MW, SW

BAND

(1) MW

(2) MW

(3) MW

(4) MW

(5) MW

(6) SW1

(7) SW1

(8) SW1

(9) SW1

(*1) Ce

(10) SW2

(11) SW2

(12) SW2

(13) SW2

(14) SW2

MEASUREMENTS AND ADJUSTMENTS

■ ALIGNMENT INSTRUCTION

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

1. Set volume control to maximum.

2. Set tone control to treble.

3. Set band switch to MW, SW1, SW2, SW3, SW4 or FM.

4. Set RF gain control to maximum.

5. Set power switch to on.
6. Set AM mode switch to AM.

7. Set band width switch to narrow.

8. Set power source voltage to 9V DC.







9. Output of signal generator should be no higher than necessary to obtain an output reading.

■ MW, SW1, SW2, SW3 and SW4 ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
		CONNECTIONS	FREQUENCY				
AM-2nd IF (455kHz) ALIGNMENT							
(1)	MW	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455kHz 30% Mod. at 400Hz	Point of non-interference. (on/ about 600kHz)	Output meter across voice coil.	T4 (AM 1st IFT) T5 (AM 2nd IFT) T3 (AM 3rd IFT)	Adjust for maximum output.
MW-RF ALIGNMENT							
(2)	MW	"	511kHz	Tuning capacitor fully closed.	"	L16 (MW OSC Coil)	Adjust for maximum output.
(3)	MW	"	1,650kHz	Tuning capacitor fully open.	"	CT8 (MW OSC Trimmer)	"
(4)	MW	"	550kHz	Tune to signal.	"	(*1) L5 (MW ANT Coil)	Adjust for maximum output. Adjust L5 by moving coil bobbin along ferrite core.
(5)	MW	"	1,500kHz	"	"	CT3 (MW ANT Trimmer)	Adjust for maximum output. Repeat steps (2)~(5).
SW1-RF ALIGNMENT							
(6)	SW1	"	1.528MHz	Tuning capacitor fully closed.	"	L17 (SW1 OSC Coil)	Adjust for maximum output.
(7)	SW1	"	4.12MHz	Tuning capacitor fully open.	"	CT9 (SW1 OSC Trimmer)	"
(8)	SW1	"	1.6MHz	Tune to signal.	"	(*1) L6 (SW1 ANT Coil)	Adjust for maximum output. Adjust L6 by moving coil bobbin along ferrite core.
(9)	SW1	"	4.0MHz	"	"	CT4 (SW1 ANT Trimmer)	Adjust for maximum output. Repeat steps (6)~(9).
(*1) Cement antenna bobbin with wax after completing alignment.							
AM-1st IF (2MHz) ALIGNMENT							
(10)	SW2	Connect to test point ▼ through ceramic capacitor (10pF). Negative side to test point ▼.	2MHz	Point of non-interference.	"	T9 (AM 1st IFT) T7 (AM 2nd IFT) T6 (AM 3rd IFT)	Adjust for maximum output.
SW2-RF ALIGNMENT							
(11)	SW2	Connect to test point ▼ through ceramic capacitor (10pF). Negative side to test point ▼.	3.82MHz	Tuning capacitor fully closed.	"	L18 (SW2 OSC Coil)	Adjust for maximum output.
(12)	SW2		10.3MHz	Tuning capacitor fully open.	"	CT10 (SW2 OSC Trimmer)	"
(13)	SW2		4.0MHz	Tune to signal.	"	L7 (SW2 ANT Coil)	"
(14)	SW2		10MHz	"	"	CT5 (SW2 ANT Trimmer)	Adjust for maximum output. Repeat steps (11)~(14).

BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS	
	CONNECTIONS	FREQUENCY					
SW3-RF ALIGNMENT							
5)	SW3	Connect to test point ▼ through ceramic capacitor (10 pF). Negative side to test point ▼.	9.7 MHz	Tuning capacitor fully closed.	Output meter across voice coil.	L19 (SW3 OSC Coil)	Adjust for maximum output.
6)	SW3		20.5 MHz	Tuning capacitor fully open.	"	CT11 (SW3 OSC Trimmer)	"
7)	SW3		10 MHz	Tune to signal.	"	L8 (SW3 ANT Coil)	"
8)	SW3		20 MHz	"	"	CT6 (SW3 ANT Trimmer)	Adjust for maximum output. Repeat steps (15)~(18).
SW4-RF ALIGNMENT							
9)	SW4		19.7 MHz	Tuning capacitor fully closed.	"	L20 (SW4 OSC Coil)	Adjust for maximum output.
10)	SW4		30.5 MHz	Tuning capacitor fully open.	"	CT12 (SW4 OSC Trimmer)	"
11)	SW4		20 MHz	Tune to signal.	"	L9 (SW4 ANT Coil)	"
12)	SW4		30 MHz	"	"	CT7 (SW4 ANT Trimmer)	Adjust for maximum output. Repeat steps (19)~(22).

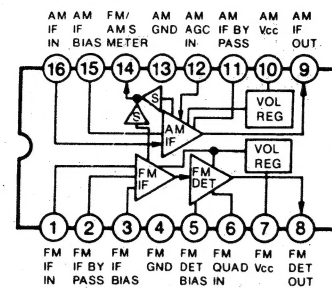
■ FM ALIGNMENT

BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
	CONNECTIONS	FREQUENCY				
FM-IF ALIGNMENT						
(1)	FM	High side thru. 0.001 μ F to test point  . Negative side to test point 	10.7MHz (SWP.)	Point of non-interference. (on/ about 90MHz)	Connect vert. amp. of scope to test point  . Negative side to test point 	T1 (FM 1st IFT) Adjust for maximum amplitude. (Refer to fig.22.)
(2)	FM	"	"	"	"	T2 (FM 2nd IFT) Adjust for maximum amplitude. (Refer to fig.23.)
FM-RF ALIGNMENT						
(3)	FM	Connect to test point  through FM dummy antenna. Negative side to test point 	87.2MHz	Variable capacitor fully closed.	Output meter across voice coil.	L2 (FM OSC Coil) (*2) Adjust for maximum output.
(4)	FM		109.2MHz	Variable capacitor fully open.	"	CT2 (FM OSC Trimmer) "
(5)	FM		90MHz	Tune to signal.	"	L1 (FM ANT Coil) "
(6)	FM		106MHz	"	"	CT1 (FM ANT Trimmer) (*2) Adjust for maximum output. Repeat steps (3)~(6).
(*2) Three output responses will be present; proper tuning is the center frequency.						

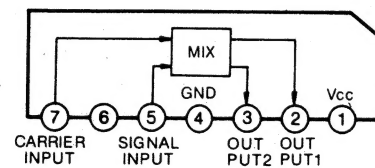
SCHEMATIC DIAGRAM MODEL RF-B300/©

■ IC BLOCK DIAGRAM

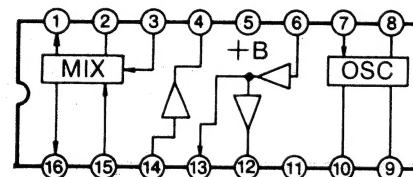
IC1 RVILA1210



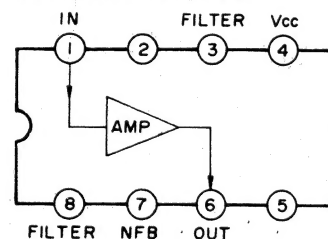
IC2 RVIUPC1037H



IC3 AN7212



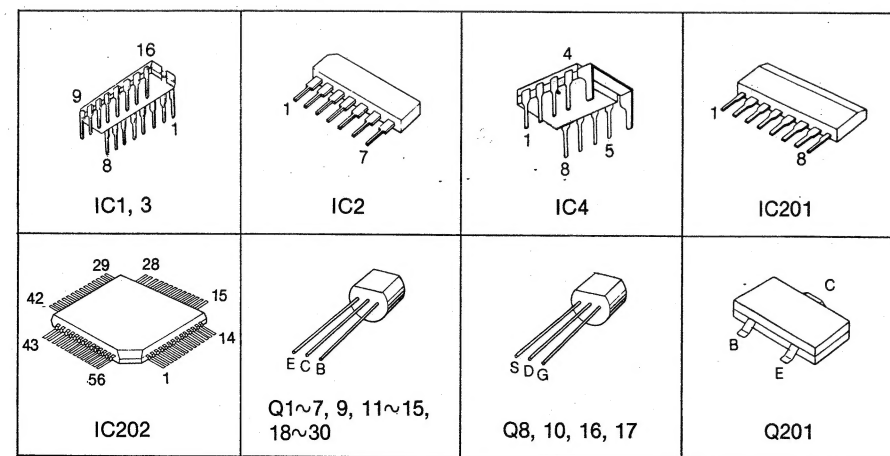
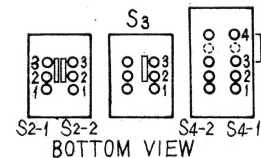
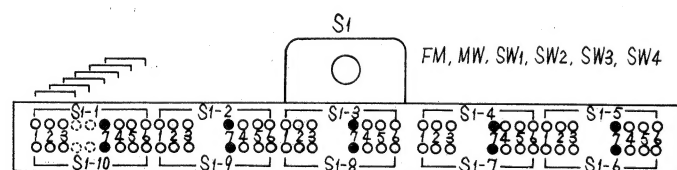
IC4 RVIUPC1213C



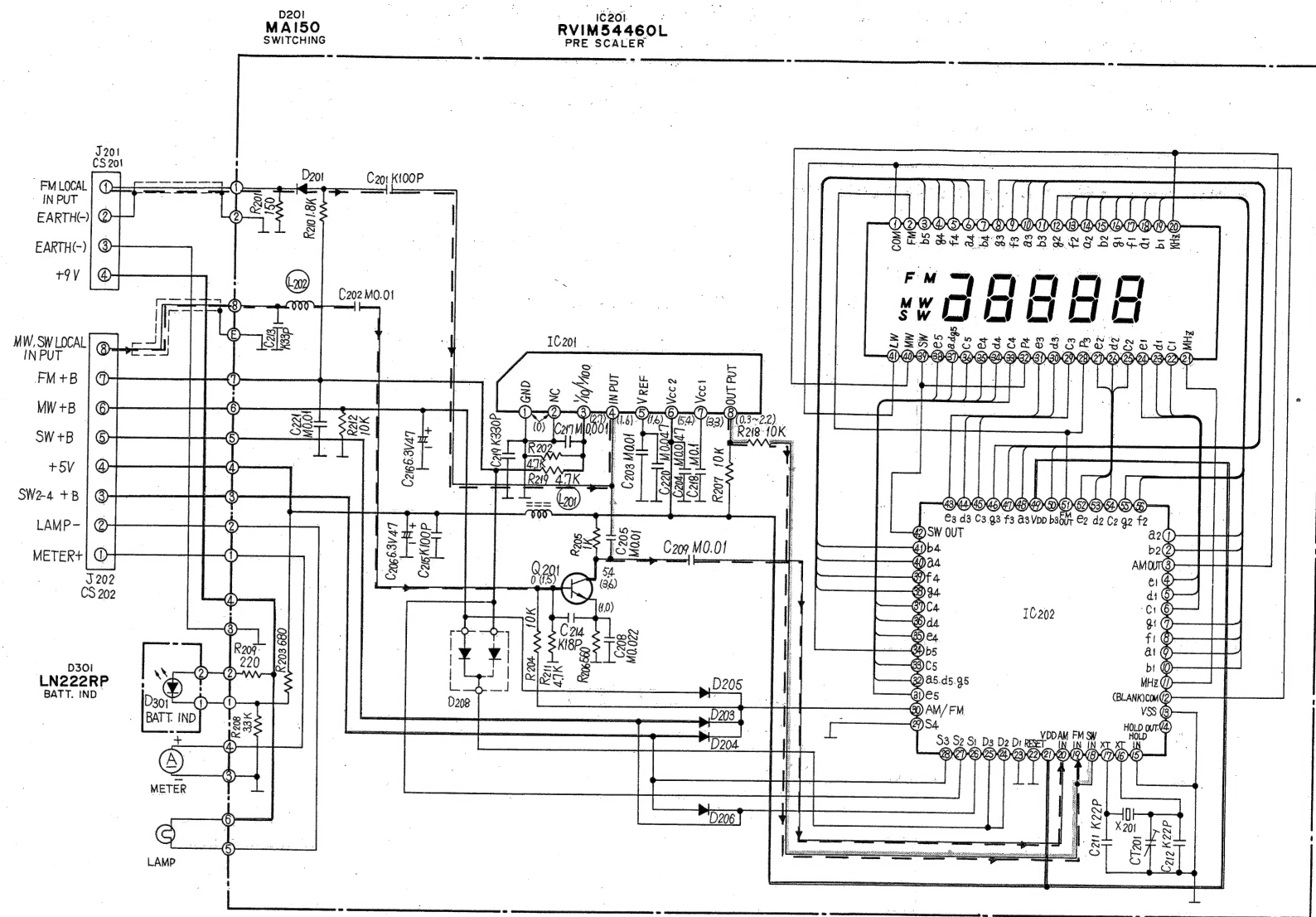
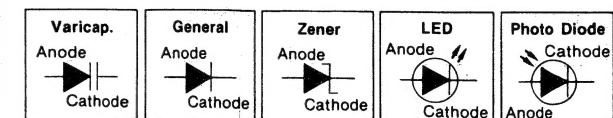
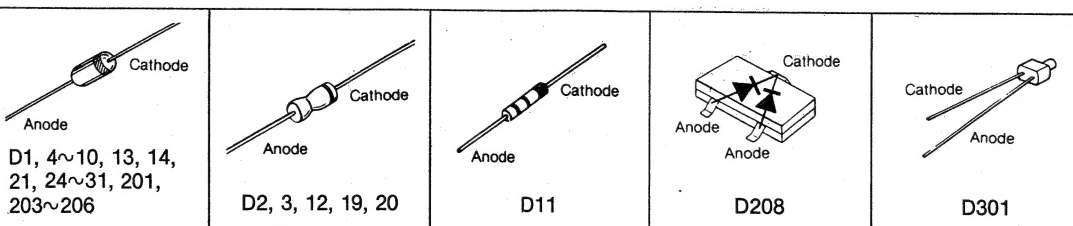
Notes:

- S1-1~S1-10: Band switch in "FM" position.
(1...FM, 2...MW, 3...SW1, 4...SW2, 5...SW3, 6...SW4)
- S2-1, S2-2: Power switch in "OFF" position.
Band width switch in "NARROW" position.
(1...WIDE, 3...NARROW)
- S4-1, S4-2: AM mode switch in "AM" position.
(1...AM, 4...USB/CW, 2...LSB/CW)
- S5: Light switch in "OFF" position.
- S6: AC/DC IN switch in "DC IN" position.
- S7: Voltage selector switch in "240V" position.
- VR1: AM RF gain VR.
VR2: Tone control VR.
VR3: Volume control VR.
- The mark (▼) shows test point.
e.g. ▼ = test point 1.
- DC voltage measurement are taken with electronics voltmeter from negative terminal of battery.
- No mark...FM position, ()...AM position,
[]...MW, SW1 position,
< >...BFO position, []...SW2~4 position,
□...USB, LSB, CW position.
- Battery current: No signal60mA
Maximum output300mA

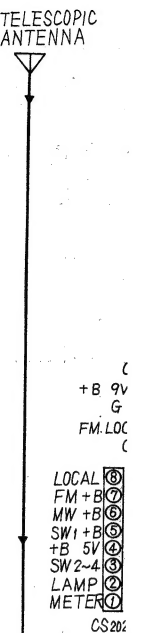
Important safety notice
The shaded area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards. When servicing it is essential that only manufacturer's specified parts be used for the critical components in the shaded areas of the schematic.



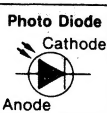
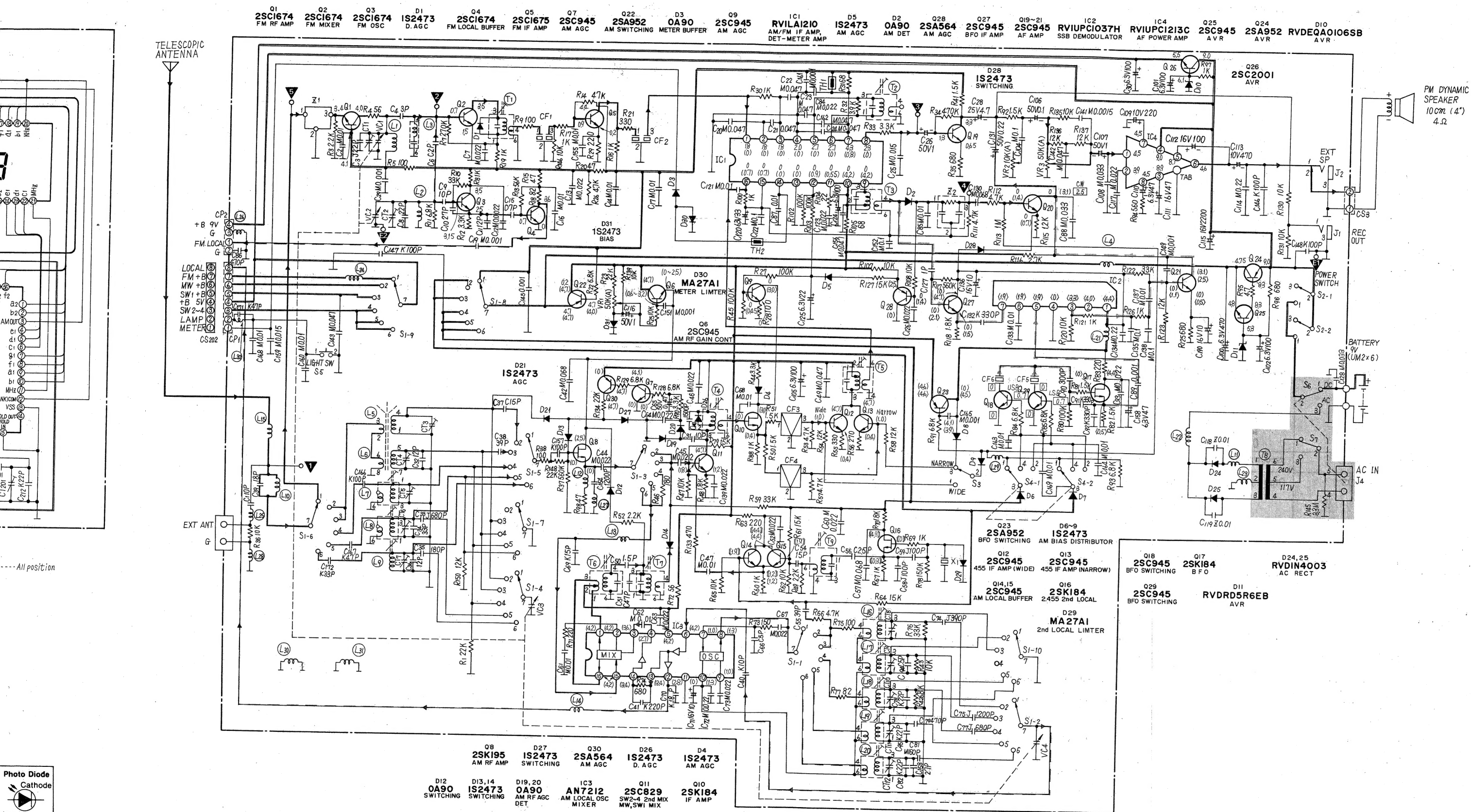
— + B Voltage Line
— FM Signal Line
— AM Signal Line
— SSB
— BFO
— FM Local OSC Signal
— AM Local OSC Signal
— SW Local OSC Signal



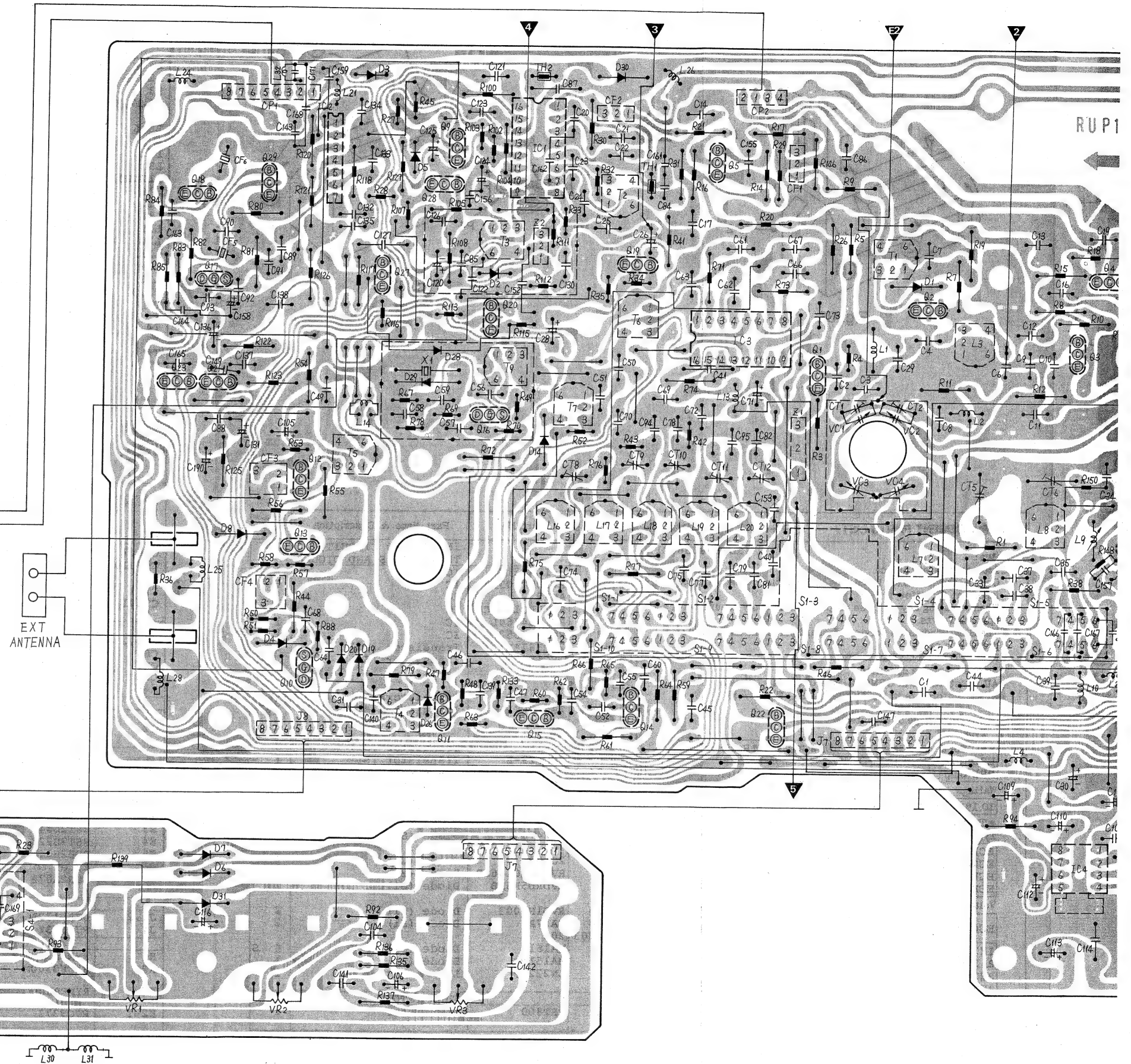
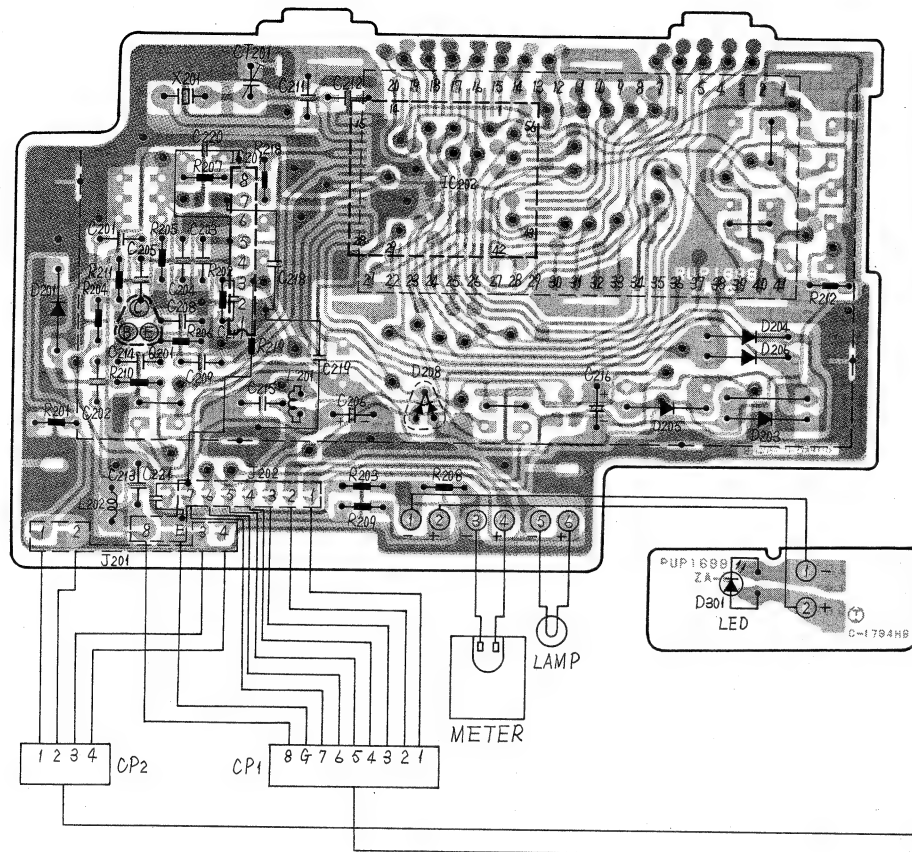
IC202										IC201										IC202									
No	1~12	13	14	15	16	17	18, 19	20	21	22, 23	24, 25	26	27	28	29	30	31~48	49	50~56	No Mark --- All position									
Voltage	229V	0V	458V	0V	2.00V	1.63V	—	208V	4.58V	0V	FM: MW 4.15V SW1~4 0.02V	FM: MW 0.02V SW1~4 0.02V	FM: MW 4.58V SW1~4 0.02V	FM: MW 4.58V SW1~4 0.02V	FM: MW 4.58V SW1~4 0.02V	FM: MW 4.58V SW1~4 0.02V	FM: MW 4.58V SW1~4 0.02V	FM: MW 4.58V SW1~4 0.02V	FM: MW 4.58V SW1~4 0.02V										



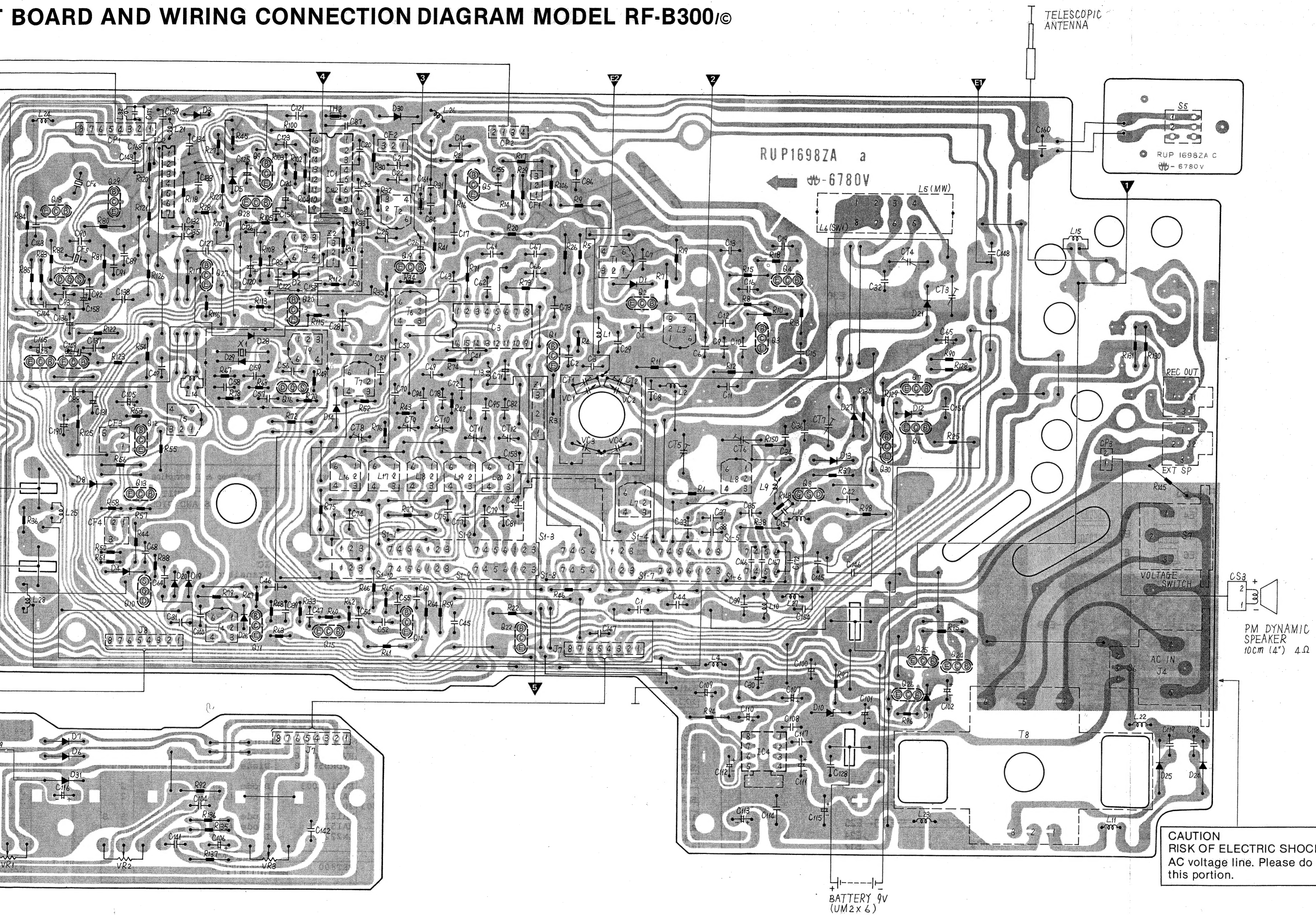
EXT ANT
G



CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM MODEL RF-B300/©

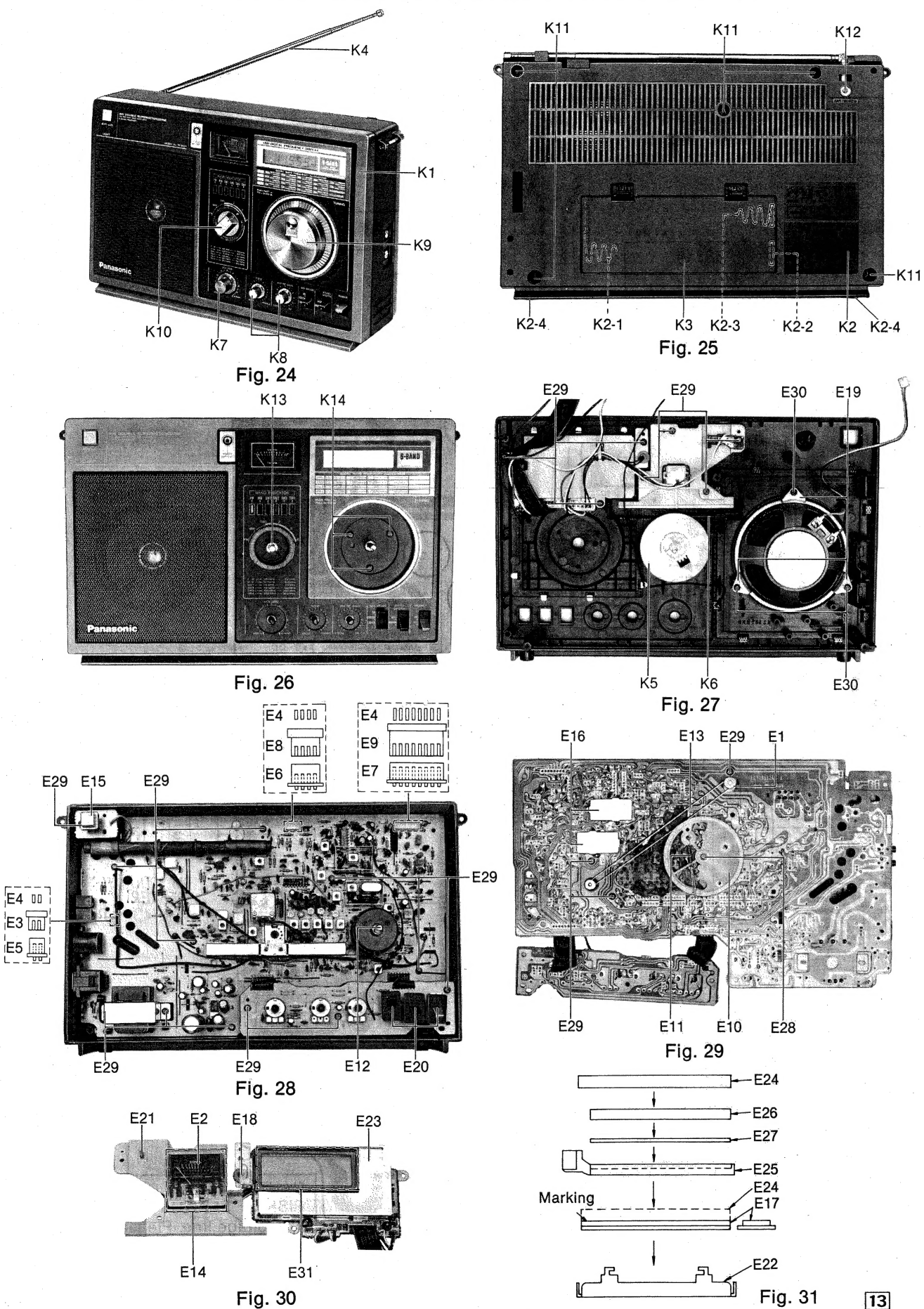


BOARD AND WIRING CONNECTION DIAGRAM MODEL RF-B300/©



CABINET AND ELECTRICAL PARTS LOCATION

ACCESSORY AND PACKING MATERIALS



■REPLACEMENT PARTS LIST..... RF-B300/©

(RD83085360C1)

Notes:

1. Important safety notice.

Components identified by Δ mark have special characteristics important for safety.

When replacing any of these components, use only manufacturer's specified parts.

2. The S mark indicates service standard parts and may differ from production parts.

3. RESISTORS & CAPACITORS

Unless otherwise specified.

All resistors are in OHMS (Ω) K=1000 Ω , M=1000k Ω

All capacitors are in MICRO FARADS (μ F) P= μ F

* Type & Wattage of Resistor

Type

ERC: Solid	ERX: Metal Film	ERW: Wirewound Resistor
ERD: Carbon	ERG: Metal Oxide	ERS: Fusible Resistor
ERR: Chip	ERO: Metal Film	ERF: Cement Resistor

Wattage

10,16:1/8W	14,25:1/4W	12,1:2W	1:1W	2:2W	3:3W
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* Type & Voltage of Capacitor

Type

ECFW: Semi-conductor	ECCD, ECKD, ECBT: Ceramic
ECQS: Styrol	ECQM, ECQV, ECQG: Polyester
ECUX: Chip	ECXA, ECSZ : Electrolytic
ECMS: Mica	ECQP : Polypropylene

Voltage

ECQ Type	ECQG, ECQV, Type	ECSZ Type	Others	
1H: 50V	0.5: 50V	0F: 3.15V	0J :6.3V	1H, 1V, 50: 50V
2A: 100V	1: 100V	1A: 10V	1A :10V	1J : 63V
2E: 500V	2: 200V	1C: 16V	1C :16V	2A :100V
2H: 500V		0J: 6.3V	1E, 25: 25V	

Ref.No.	Part No.	Part Name & Description	Per Set
INTEGRATED CIRCUIT, TRANSISTORS AND DIODES			
IC1	RVILA1210	IC	1
IC2	RVIUPC1037H	IC	1
IC3	AN7212	IC	1
IC4	RVIUPC1213C	IC	1
IC201	RVIM54460L	IC	1
IC202	RVIMSM5527GS	IC	1
Q1~4	2SC1674L	Transistor (Si)	4
Q5	2SC1675-L	Transistor (Si)	1
Q6,7,9,12~15,18~21,25,27,29	2SC945-Q	Transistor (Si)	14
Q8	2SK195F1	Transistor (Si)	1
Q10,16,17	2SK184GR	Transistor (Si)	3
Q11	2SC829-B	Transistor (Si)	1
Q22~24	2SA952K2	Transistor (Si)	3
Q26	2SC2001	Transistor (Si)	1
Q28,30	2SA722-S	Transistor (Si)	2
Q201	2SC1009F4	Transistor (Si)	1
D1,4~9,13,26~28,31	1S2473	Diode (Si)	14
D2,3,12,19,20	20A90	Diode (Ge)	5
D10	RVDEQA0106SB	Diode (Si)	1
D11	RVDRD5R6EB	Diode (Si)	1
D24,25	RVDLN4003	Diode (Si)	2
D29,30	MA27A1	Diode (Si)	2
D201,203~206	MA161	Diode (Si)	5
D208	MA151WK	Diode (Si)	1
D301	LN222RP	LED	1
THERMISTORS			
TH1,2	RRT800	Thermistor	2

Ref. No.	Part No.
X1	RVCD2
X201	RVCA6
L1	RLD4Y
L2	RLD4Y
L3	RLI4M
L4,27,31,32	RLQZB
L5,6	RLF5F
L7	RLO3M
L8	RLA3M
L9	RLA3N
LI2,201	RLQZG
LI6	RLO2M
LI7	RLO3M
LI8	RLO3M
LI9	RLO3M
L20	RLO3M
L21	RLQZB
L24	RLQZB
L30	RLQZB
TL,2	RLI4M
T3	RLI2M
T4	RLI2M
T5	RLI2M
T6	RLI9M
T7,9	RLI9M
T8	RLT5J
VR1,3	EVHOX
VR2	EVHOX
VC1~4	RCV4F
CT3~5	RCV1C
CT6,7	RCV1C
CT8~10,12	RCVTZ
CT11	RCVTZ
CT201	RCVCT
CF1,2	RVF10
CF3	RVFSE
CF4	RVFSE
CF5	RVFCS
CF6	RVFCS
Z1	RXABF
Z2	EXAF2
	EAS1C
S1	RSR6J
S2	RST2E
S3	RST2E
S4	RST3E
S5	RSH2E
S6	Refer
S7	RSR2P
J1,2	QJA01
J4	RJJ1P
K1	RYMFE
K2	RYFFE
K2	RYFFE
K2-1	RJC9C

ACCESSORY AND PACKING MATERIALS

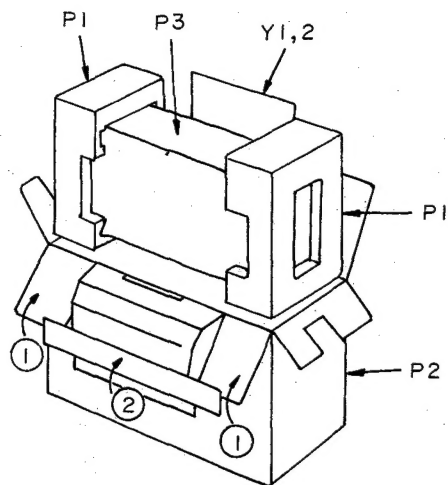


Fig. 32

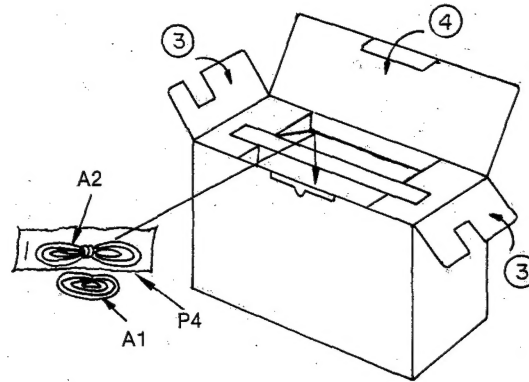


Fig. 33

REPLACEMENT PARTS LIST RF-B300/©

(RD83085360C1)

Notes:

- Important safety notice.
Components identified by Δ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.
- The S mark indicates service standard parts and may differ from production parts.
- RESISTORS & CAPACITORS
Unless otherwise specified.
All resistors are in OHMS (Ω) K=1000 Ω , M=1000k Ω
All capacitors are in MICRO FARADS (μ F) P= μ F

*Type & Wattage of Resistor

Type	ERC:Solid	ERX:Metal Film	ERW:Wirewound Resistor
	ERD:Carbon	ERG:Metal Oxide	ERS:Fusible Resistor
	RRD:Chip	ERO:Metal Film	ERF:Cement Resistor

Wattage

10,16:1/8W	14,25:1/4W	12,1:1/2W	1:1W	2:2W	3:3W
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*Type & Voltage of Capacitor

Type	ECFW:Semi-conductor	ECOD, ECKD, ECBT: Ceramic
	ECQS:Styrol	ECQM, ECQV, ECQG: Polyester
	ECUX:Chip	ECBA, ECSZ: Electrolytic
	ECMS:Mica	ECQP: Polypropylene

Voltage

ECQ Type	ECQG, ECQV Type	ECSZ Type	Others
1H: 50V	0.5: 50V	OF: 3.15V	0J: 6.3V
2A: 100V	1: 100V	1A: 10V	1A: 10V
2E: 500V	2: 200V	1V: 35V	1C: 16V
2H: 500V		0J: 6.3V	1E, 25: 25V

Ref.No.	Part No.	Part Name & Description	Per Set
		INTEGRATED CIRCUIT, TRANSISTORS AND DIODES	
IC1	RVILA1210	IC	1
IC2	RVIUPC1037H	IC	1
IC3	AN7212	IC	1
IC4	RVIUPC1213C	IC	1
IC201	RVIM54460L	IC	1
IC202	RVIMSM5527GS	IC	1
Q1~4	2SC1674L	Transistor (Si)	4
Q5	2SC1675-L	Transistor (Si)	1
Q6,7,9,12,25,27,29	2SC945-Q	Transistor (Si)	14
Q8	2SK195F1	Transistor (Si)	1
Q10,16,17	2SK184GR	Transistor (Si)	3
Q11	2SC829-B	Transistor (Si)	1
Q22~24	2SA952K2	Transistor (Si)	3
Q26	2SC2001	Transistor (Si)	1
Q28,30	2SA722-S	Transistor (Si)	2
Q201	2SC1009F4	Transistor (Si)	1
D1,4~9,13,26~28,31	1S2473	Diode (Si)	14
D2,3,12,19,20	20A90	Diode (Ge)	5
D10	RVDEQA0106SB	Diode (Si)	1
D11	RVDRD5R6EB	Diode (Si)	1
D24,25	RVDLN4003	Diode (Si)	2
D29,30	MA27A1	Diode (Si)	2
D201,203	206	Diode (Si)	5
D208	MA161	Diode (Si)	1
D301	MA151WK	Diode (Si)	1
	LN222RP	LED	1
		THERMISTORS	
TH1,2	RRT800	Thermistor	2

Ref. No.	Part No.	Part Name & Description	Per Set
		CRYSTALS	
X1	RVCD2455NRN	Crystal	1
X201	RVCA6553NZN	Crystal	1
		COILS AND TRANSFORMERS	
L1	RLD4Y44	Antenna Coil, FM	1
L2	RLD4Y43	Oscillator Coil, FM	1
L3	RLI4M103	Trap Coil	1
L4,27,31,32	RLQZB101K	Choke Coil	4
L5,6	RLF5F94	Antenna Coil, MW, SW1	1
L7	RLO3M22	Antenna Coil, SW2	1
L8	RLA3M67	Antenna Coil, SW3	1
L9	RLA3N14	Antenna Coil, SW4	1
L12,201	RLQZG102K	Choke Coil	2
L16	RLO2M14	Oscillator Coil, MW	1
L17	RLO3M32	Oscillator Coil, SW1	1
L18	RLO3M15	Oscillator Coil, SW2	1
L19	RLO3M78	Oscillator Coil, SW3	1
L20	RLO3M85	Oscillator Coil, SW4	1
L21	RLQZB471K	Choke Coil	1
L24	RLQZB100K	Choke Coil	1
L30	RLQZB4R7K	Choke Coil	1
T1,2	RLI4M101	IFT, FM	2
T3	RLI2M402	IFT, AM 2nd	1
T4	RLI2M214	IFT, AM 2nd	1
T5	RLI2M205	IFT, AM 2nd	1
T6	RLI9M3	IFT, AM 1st	1
T7,9	RLI9M7	IFT, AM 1st	2
T8	RLT5J3C1A	Power Transformer	1 Δ
		VARIABLE RESISTORS	
VR1,3	EVH0XAF15A54	Variable Resistor, 50k Ω (A)	2
VR2	EVH0XAF15A14	Variable Resistor, 10k Ω (A)	1
		VARIABLE CAPACITORS	
VC1~4	RCV4RC2VK	Tuning Capacitor/with Trimmer Capacitor (CT1,2)	1
CT3~5	RCV1GT10A	Trimmer Capacitor	3
CT6,7	RCV1GT20A	Trimmer Capacitor	2
CT8~10,12	RCVTZ11F	Trimmer Capacitor	4
CT11	RCVTZ20F	Trimmer Capacitor	1
CT201	RCVCTP3110	Trimmer Capacitor	1
		CERAMIC FILTERS	
CF1,2	RVF107NAR	Ceramic Filter	2
CF3	RVFSFP455H10	Ceramic Filter	1
CF4	RVFSFP455K	Ceramic Filter	1
CF5	RVFCSB453R5	Ceramic Element	1
CF6	RVFCSB456R5	Ceramic Element	1
		COMPONENT COMBINATIONS	
Z1	RXABPMB1	Component Combination	1
Z2	EXAF203Z471F	Component Combination	1
		SPEAKER	
	EAS10P253S	Speaker, 10 cm (4"), 4 Ω	1
		SWITCHES	
S1	RSR6J04Z	Switch, Band	1
S2	RST2B34Y	Switch, Power	1
S3	RST2B34Z	Switch, Band Width	1
S4	RST3B22Z	Switch, AM Mode	1
S5	RSH2B24X	Switch, Light	1
S6	Refer to J4	Switch, AC/DC	1
S7	RSR2A07Z	Switch, Voltage Selector	1 Δ
		JACKS	
J1,2	QJA0172A	Jack, REC OUT, EXT SP	2
J4	RJJ1A3Z	Jack, AC	1 Δ
		CABINET PARTS	
K1	RYMFB300M8	Front Cabinet Ass'y	1
K2	RYFFB300M	Rear Cabinet Ass'y, for U.S.A.	1
K2	RYFFB300C	Rear Cabinet Ass'y, for Canada	1
K2-1	RJC937Z	Terminal, Battery +, - Side	1
		Ref. No. Part No. Value	
		RESISTORS	
R1	ERD25FJ223	22K Ω S	
R3	ERD25FJ222	2.2K Ω S	
		Ref. No. Part No. Value	
		PRINTED MATERIALS	
		Y1	Instruction Book, for U.S.A.
		Y1	Instruction Book, for Canada
		Y2	Short Wave Manual, for U.S.A.
		Ref. No. Part No. Value	
		PACKING MATERIALS	
		P1	Pad
		P2	Gift Box, for U.S.A.
		P2	Gift Box, for Canada
		P3	Polyethylene Cover, Set
		P4	Polyethylene Cover, AC Cord
		Ref. No. Part No. Value	
		ACCESSORIES	
A1	RQC9017Y	Belt, Shoulder	1
A2	RJA22Y	Cord, AC Power	1 Δ
		Ref. No. Part No. Value	
		ELECTRICAL PARTS	
E1	RZCFB300M	Dial Roller Ass'y	1
E2	RSM2540Z	Meter	1
E3	RJS2L3Z	Socket, 2 Pin	1
E4	RJT707Z	Terminal, Socket	14
E5	RJP2G4Z	Plug, 2 Pin	1
E6	RJP4G4Z	Plug, 4 Pin	1
E7	RJP8G4Z	Plug, 8 Pin	1
E8	RJS4L3Z	Socket, 4 Pin	1
E9	RJS8L3Z	Socket, 8 Pin	1
E10	RDD655Z	Drum, Dial	1
E11	RDS4090A	Spring, Drum	1
E12	RDY9135Z	Tuning Shaft Ass'y	1
E13	RDZ05A1	Cord, Dial	1 Roll
E14	RHG2032Z	Rubber, Meter	1
E15	RBC485Z	Button, Light	1
E16	RMC382Z	Shield Cover	2
E17	RADLCD453-02	LCD	1
E18	XAMR43T100A	Pilot Lamp	1
E19	RMS12B	Bracket, Speaker	3
E20	RUV379Z	Cover, Switch	3
E21	RMP128Z	Holder, LED	1
E22	RMC891Z	Cover, LCD	1
E23	RMC892Z	Shield Plate, LCD Block	1
E24	RHG5024Z	Conductive Rubber	2
E25	RHR1219Z	Spacer	1
E26	RHR2044Z	Cushion	1
E27	RDH199Z	Reflection Plate	1
E28	XYN26+C8	Screw, Drum M'tg	1
E29	XTV3+12G	Screw, Circuit Board, etc. M'tg	23
E30	XTV3+10G	Screw, Speaker, etc. M'tg	3
E31	RMC936Z	Shield Cover	1

Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value
R8	ERD25FJ102	1K S	R100	ERD25FJ102	1K S	C31	ECCD1H100KC	10P	C118	ECKD1H103ZF	0.01
R9	ERD25FJ101	100 S	R102	ERD25TJ104	100K S	C32	ECCD1H120KC	12P	C119	ECKD1H103ZF	0.01
R10	ERD25FJ333	33K S	R103	ERD25TJ104	100K S	C33	ECQS2B681JZ	680P	C120	ECEALCS330	33 S
R11	ERD25FJ682	6.8K S	R104	ERD25FJ220	22 S				C121	ECKD1H103MD	0.01
R12	ERD25FJ332	3.3K S	R105	ERD25FJ680	68 S	C34	ECCD1H330KC	33P	C122	ECFV1C104MD	0.1
R13	ERD25FJ563	56K S	R107	ERD25FJ103	10K S	C35	ECMS05181J	180P	C123	ECKD1H223ZF	0.022
R14	ERD25FJ473	47K S	R108	ERD25FJ103	10K S	C36	ECCD1H120KC	12P	C124	ECEA0JU471	470
R15	ERD25FJ470	47 S	R111	ERD25FJ472	4.7K S	C37	ECCD1H150KC	15P			
R16	ERD25FJ102	1K S	R112	ERD25FJ472	4.7K S	C38	ECCD1H390KC	39P	C125	ECEALES220	22 S
R17	ERD25FJ102	1K S	R113	ERD25TJ105	1M S	C39	ECCD1H180KC	18P	C126	ECFT1E223MD	0.022
R18	ERD25FJ820	82 S				C40	ECCD1H100KU	10P	C127	ECBS1H10	1P
R19	ERD25FJ102	1K S	R115	ERD25FJ122	1.2K S	C41	ECBS1H221KB	220P	C128	ECKD1H333ZF	0.033
R20	ERD25FJ470	47 S	R116	ERD25FJ272	2.7K S	C42	ECFT1E683MD	0.068	C130	ECFT1E683MD	0.068
R21	ERD25FJ331	330 S	R117	ERD25TJ564	560K S	C44	ECFT1E223MD	0.022	C131	ECEALHSR22	0.22
R22	ERD25FJ682	6.8K S	R118	ERD25FJ182	1.8K S				C132	ECCD1H331K	330P
R23	ERD25FJ223	22K S	R120	ERD25FJ103	10K S	C45	ECFT1E223MD	0.022	C133	ECFT1E103MD	0.01
			R121	ERD25FJ102	1K S	C46	ECFT1E223MD	0.022	C134	ECFT1E223MD	0.022
R25	ERD25FJ103	10K S	R122	ERD25FJ333	33K S	C47	ECFT1E103MD	0.01	C135	ECFT1C104MD	0.1
R26	ERD25FJ472	4.7K S	R123	ERD25FJ123	12K S	C49	ECFT1E473MD	0.047			
R27	ERD25TJ104	100K S	R125	ERD25FJ681	680 S	C50	ECCD1H1R5C	1.5P	C136	ECEALHS100	10 S
R28	ERD25FJ101	100 S	R126	ERD25FJ102	1K S	C51	ECCD1H470KC	47P	C137	ECFT1E103MD	0.01
R29	ERD25FJ221	220 S				C52	ECFT1E223MD	0.022	C138	ECFT1C104MD	0.1
R30	ERD25FJ102	1K S	R127	ERD25FJ153	15K S	C54	ECCD1H150KC	15P	C139	ECFT1E223MD	0.022
R31	ERD25FJ680	68 S	R128	ERD25FJ682	6.8K S	C55	ECCD1H390KC	39P	C140	ECQP2A152JZ	1500P
R32	ERD25FJ392	3.9K S	R129	ERD25FJ682	6.8K S	C56	ECCD1H2R5C	2.5P	C141	ECKD1H102MD	0.001
R33	ERD25FJ332	3.3K S	R130	ERD25FJ103	10K S				C142	ECFT1E473MD	0.047
R34	ERD25TJ474	470K S	R131	ERD25FJ103	10K S	C57	ECFV1E683MD	0.068	C143	ECFT1E473MD	0.047
R35	ERD25FJ681	680 S	R133	ERD25FJ471	470 S	C58	ECMS05101J	100P	C145	ECKD1H102ZF	0.001
R36	ERC12GM103	10K S	R134	ERD25FJ223	22K S	C59	ECMS05101J	100P	C146	ECCD1H101K	100P
R37	ERD25TJ564	560K S	R135	ERD25FJ103	10K S	C60	ECFT1E223MD	0.022			
R38	ERD25FJ101	100 S	R136	ERD25FJ123	12K S	C61	ECFT1E103MD	0.01	C147	ECCD1H101K	100P
R41	ERD25FJ152	1.5K S	R137	ERD25FJ123	12K S	C62	ECFT1E103MD	0.01	C148	ECCD1H101K	100P
R42	ERD25FJ682	6.8K S				C63	ECFT1E223MD	0.022	C149	ECKD1H102MD	0.001
R43	ERD25FJ103	10K S	R139	ERD25FJ103	10K S	C64	ECFT1E223MD	0.022	C150	ECCD1H101K	100P
R44	ERD25FJ332	3.3K S	R145	ERC12ZGM335	3.3M Δ	C65	ECEA50ZR47	0.47 S	C151	ECKD1H102MD	0.001
R45	ERD25TJ104	100K S	R146	ERD25FJ103	10K S	C66	ECCD1H050CC	5P	C152	ECFV1C104MD	0.1
R46	ERD25FJ181	180 S	R148	ERD25FJ222	2.2K S				C153	ECCD1H270KC	27P
R47	ERD25FJ103	10K S	R150	ERD25FJ123	12K S	C67	ECFT1E223MD	0.022	C154	ECQP2A122JZ	1200P
R48	ERD25FJ182	1.8K S	R201	RRD18XJ151	150	C68	ECFT1E103MD	0.01	C155	ECKD1H103MD	0.01
R49	ERD25FJ222	2.2K S	R202	RRD18XJ472	4.7K	C69	ECCD1H150KC	15P	C156	ECFV1E473MD	0.047
R50	ERD25FJ152	1.5K S	R203	RRD18XJ681	680	C70	ECCD1H180KC	18P			
R51	ERD25FJ152	1.5K S	R204	RRD18XJ103	10K	C71	ECEALHS100	10 S	C157	ECCD1H101K	100P
R52	ERD25FJ182	1.8K S	R205	RRD18XJ102	1K	C72	ECFT1E223MD	0.022	C158	ECEALAS470	47 S
R53	ERD25FJ472	4.7K S				C73	ECFT1E223MD	0.022	C159	ECFV1E153MD	0.015
R54	ERD25FJ123	12K S	R206	RRD18XJ561	560	C74	ECQP2A391JZ	390P	C160	ECKD1H103MD	0.01
R55	ERD25FJ331	330 S	R207	RRD18XJ103	10K	C75	ECQS2B122JZ	1200P	C161	ECKD1H102MD	0.001
R56	ERD25FJ271	270 S	R208	RRD18XJ332	3.3K	C77	ECQS2B681JZ	680P	C162	ECFV1E473MD	0.047
R57	ERD25FJ472	4.7K S	R209	RRD18XJ221	220				C163	ECKD1H103MD	0.01
R58	ERD25FJ123	12K S	R210	RRD18XJ182	1.8K	C78	ECCD1H220KX	22P	C164	ECKD1H103MD	0.01
R59	ERD25FJ333	33K S	R211	RRD18XJ472	4.7K	C79	ECQS2B471JZ	470P	C165	ECKD1H102MD	0.001
R60	ERD25FJ102	1K S	R212	RRD18XJ103	10K	C81	ECMS05161J	160P	C166	ECCD1H101K	100P
R61	ERD25FJ153	15K S	R218	RRD18XJ103	10K	C82	ECCD1H220KX	22P			
R62	ERD25FJ103	10K S	R219	ERD10TJ472	4.7K S	C84	ECFT1E223MD	0.022	C167	ECCD1H470KC	47P
R63	ERD25FJ221	220 S				C85	ECKD1H103MD	0.01	C168	ECKD1H103MD	0.01
R64	ERD25FJ153	15K S				C86	ECKD1H471KB	470P	C169	ECKD1H103MD	0.01
R65	ERD25FJ103	10K S				C87	ECBS1C103NY	0.01	C171	ECCD1H470KC	47P
R66	ERD25FJ472	4.7K S				C88	ECFT1E333MD	0.033	C172	ECCD1H330KC	33P
R67	ERD25FJ102	1K S				C89	ECKD1H102ZF	0.001	C190	ECEALHS100	10 S
R69	ERD25FJ102	1K S							C201	ECUX1H101K	100P
R70	ERD25FJ182	1.8K S							C202	ECUX1H103MD	0.01
R71	ERD25FJ221	220 S				C90	ECQS2B301JZ	300P	C203	ECUX1H103MD	0.01
R72	ERD25FJ560	56 S				C91	ECCD1H331K	330P	C204	ECUX1E473MD	0.047
R73	ERD25FJ151	150 S				C92	ECCD1H331K	330P	C205	ECUX1H103MD	0.01
R74	ERD25FJ681	680 S				C93	ECFT1E223MD	0.022	C206	ECEALAS470	47 S
R75	ERD25FJ101	100 S				C94	ECCD1H050CU	5P			
R76	ERD25FJ333	33K S				C95	ECCD1H220KX	22P			
R77	ERD25FJ820	82 S				C100	ECEA0JS471	470 S	C208	ECUX1H223MD	0.022
R78	ERD25TJ154	150K S				C101	ECEALAS101	100 S	C209	ECUX1H103MD	0.01
R79	ERD25FJ153	15K S				C102	ECEALAS101	100 S	C211	ECUX1H220KC	22P
R80	ERD25TJ104	100K S				C104	ECFT1C104MD	0.1	C212	ECUX1H220KC	22P
R81	ERD25FJ152	1.5K S							C213	ECUX1H330KC	33P
R82	ERD25FJ152	1.5K S				C105	ECEA0JU471	470	C214	ECUX1H180KC	18P
R83	ERD25FJ221	220 S				C106	ECEA50ZR1	0.1 S	C215	ECUX1H101K	100P
R84	ERD25FJ682	6.8K S				C107	ECEA50Z1	1 S	C216	ECEALAS470	47 S
R85	ERD25FJ682	6.8K S				C108	ECKD1H332MD	0.0033	C217	ECKD1H102MD	0.001
R88	ERD25FJ102	1K S				C109	ECEALAS221	220 S	C218	ECFV1C104MD	0.1
R90	ERD25FJ333	33K S				C110	ECEALAS470	47 S			
R91	ERD25TJ683	68K S				C111	ECEALCS470	47 S	C219	ECCD1H331K	330P
R92	ERD25FJ152	1.5K S				C112	ECEALES101	100 S	C220	ECFV1E473MD	0.047
R93	ERD25FJ682	6.8K S				C113	ECEALAS471	470 S	C221	ECKD1H103MD	0.01
R94	ERD25FJ561	560 S				C114	ECQGLH224MZ	0.22			
R95	ERD25FJ477	4.7 S									
R96	ERD25FJ681	680 S				C115	ECEALCS222	2200 S			
R97	ERD25FJ102	1K S				C116	ECEA50Z1	1 S			
R98	ERD25FJ470	47 S				C117	ECFT1E223MD	0.022			